North American Drought Monitor - September 2003

CANADA: By September 30 drought conditions remained widespread in western Canada, including the lower mainland, southern Vancouver Island, and the southern interior of British Columbia, Alberta, eastern Saskatchewan, and western Manitoba. Drought impacted about 35 percent of the agricultural region in western Canada during the 2003 growing season. Abnormally dry conditions also persisted in area southwest of Thunder Bay, Ontario, and east of Lake Huron. Cool, wet conditions in Ontario generally hindered harvest efforts. Harvests generally progressed well in Quebec and the Atlantic provinces; however, Hurricane Juan (landfall on the night of September 28-29 near Halifax) damaged some of the crops in central Nova Scotia.

UNITED STATES: Although the nation experienced its 40th wettest September during the 109-year period of record, according to preliminary information provided by the National Climatic Data Center, drier-than-normal weather persisted in several drought-stricken regions. Meanwhile, rainy weather continued in many already-wet areas. For example, September rainfall totals were among the ten highest on record in nine well-watered states from Tennessee northeastward to Connecticut, while below-normal precipitation was observed in many drought-affected areas from the Plains westward.

Midwestern soil moisture shortages persisted through month's end roughly north of a line from Kansas City, Missouri, to Detroit, Michigan, despite a period of locally heavy rainfall beginning September 10. Though the rain was welcomed across the northern and western Corn Belt, it came too late to aid drought-stressed summer crops, including soybeans. Elsewhere in the Midwest, early-month downpours caused local flooding in the Ohio Valley, followed by a spell of cool, mostly dry weather. However, heavy rain returned to much of the eastern Corn Belt toward the end of September, causing minor fieldwork delays. A similar weather pattern prevailed across the South, where humid, showery conditions in early September yielded to cool, favorably dry weather. Before widespread showers returned to the South in late September, the only interruptions in an otherwise favorable period for summer crop maturation and harvesting were persistently heavy rains in Deep South Texas and the September 18-19 passage of Hurricane Isabel through the southern Mid-Atlantic States. Farther west, the same storm system that produced rainfall in the upper Midwest also delivered beneficial moisture to the Plains prior to mid-month. However, the mid- to late-September return of mostly dry, occasionally hot weather on the Plains reduced soil moisture for winter wheat germination and establishment. Drought concerns were greatest on the northern and central High Plains. From the Rockies westward, the month opened and closed on a very warm note, helping to boost September temperatures as much as 5^{o}F above normal. Between warm spells, a winter-like storm system crossed the West, sparking heavy rainfall and some high-elevation snows from the Four Corners region northward into Wyoming. Beneficial precipitation also fell prior to mid-September in winter wheat areas of the Northwest, although unfavorably dry weather returned thereafter.

From the end of August to early October, there were few changes in the Western drought depiction, in part due to the hydrological, long-term nature of the drought. A large area of extreme drought (D3), with embedded pockets of exceptional drought (D4), persisted in a broad swath from northern Arizona northward into parts of Montana. Although there was some slight improvement noted in the Four Corners region, extreme drought (D3) was introduced in parts of southern New Mexico and western Texas. Farther east, locally heavy rainfall eroded abnormal

dryness and moderate drought (D0 and D1) in a few areas on the central and southern Plains, including parts of northern Oklahoma and southeastern Kansas. However, conditions failed to improve significantly elsewhere on the Plains. Meanwhile, some expansion of moderate to extreme drought (D1 to D3) was observed in the Midwest, particularly across the upper Mississippi Valley.

MEXICO: According to National Meteorological Service (SMN), Mexico experienced its 10th wettest September during the 63-year period of record. The greatest concentration of wetness included central, northeastern, and parts of northwestern Mexico. In addition, Mexican precipitation during the first 10 days of October was the highest on record for that period.

Most of Mexico continued to experience a bountiful rainy season into October, aided by eastern Pacific Hurricanes Marty, Nora, and Olaf, and Atlantic Tropical Storm Larry. Marty contributed to drought-easing September rains across northwestern Mexico, while the remnants of Nora and Olaf maintained wet conditions in that region into early October. Marty took an unusual path across the southern tip of Baja California (on September 22) and through the Gulf of California, before stalling and dissipating (on September 25) near the northern edge of that narrow body of water. Olaf made landfall as a tropical storm on the night of October 6-7 near Manzanillo, Colima, followed by Nora as a tropical depression on October 8 near Mazatlan, Sinaloa. Meanwhile in the Gulf of Mexico, slow- and southward-moving Larry caused extensive flooding in areas bordering the Bay of Campeche. After lingering just offshore, Larry finally moved inland on October 5 east of Coatzacoalcos, Veracruz, sparking floods in the southern Gulf coast region and along the Pacific coast of Oaxaca and Chiapas.

In southern Mexico, abundant rains during the last two months left only a lingering pocket of moderate hydrological drought (D1) in northern Guerrero and adjacent states. Only a few areas of abnormal dryness remained elsewhere in southern and southeastern Mexico, the largest of which stretched from Chiapas northeastward into parts of Yucatan and Quintana Roo. Farther north, there was some improvement in the water-supply situation across northwestern Mexico, where drought-lowered reservoirs in the western Sierra Madre benefited from late-summer rainfall. However, rains were less impressive farther inland, resulting in little overall change in severe to extreme drought conditions (D2 to D3) across northern Chihuahua. Farther south and east, however, reservoirs were full across much of central and northeastern Mexico.